Auditing the Pedestrian Environment: A Brief Tool for Practitioners & Community Members

Microscale Audit of Pedestrian Streetscapes: MAPS-Mini Training

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National Walking Summit 2015
Safe Routes to School (SRTS) programs work

today, few kids actively travel to school

TRAFFIC SPEED AND VOLUME, AND LACK OF
SCHOOLING, ARE THE MAIN BARRIERS

compared to 48% in 1969

13% walk or bike now
among those living within ¼ mile of school
just 56% walk or bike

kids are more active when walking and biking are safe

AFTER IMPLEMENTING SAFE ROUTES TO SCHOOL PROGRAMS.

16 min. (average)

45% increase in walking

44% fewer injuries

45%

44%

16 min. (average)

can be achieved by walking or biking to school

THE BENEFITS OF STREET-SCALE FEATURES FOR WALKING AND BIKING

Business Performance in Walkable Shopping Areas
Welcome to Training

- **Part 1:**
  - Background on MAPS development & validation
  - Items & protocols
  - Post-data collection follow-ups

- **Part 2:**
  - Fieldwork / Neighborhood rating
Design of streetscapes matters
Why measure streetscapes?

- Study how streetscape characteristics are related to walking, biking, driving, enjoyment
- Document disparities in streetscape quality
- Identify great streets and give them awards
- Pinpoint deficiencies and problems so they can be improved
- Engage community members in assessment as a basis for advocacy
What are lessons from research?

- Many studies show walkability and land use attributes are related to walking and health
  - Mixed use, density, connectivity
- Research on “micro-scale” attributes is limited, and results are not consistent
  - Sidewalks, crossings, street trees, bike facilities
- But micro-scale features are easier to modify
- Many micro-scale measures, but they are not often used
  - Too long, difficult to score, hard to interpret
History of MAPS – Part 1

- Adapted from Ross Brownson’s Analytic Tool
- 120 items
- Used in 3 studies conducted in Seattle, Baltimore, and San Diego regions\(^1\)
  - Studied different age groups
  - 2117 routes; 3677 participants
  - Established reliability & validity
- Found MAPS was related mainly to walking for transport

History of MAPS – Part 2

- Based on results, the team created MAPS-Abbreviated
- Only 60 items
  - Established reliability and validity
- We now recommend this version to researchers
Introducing MAPS-Mini

- 15-item, evidence-based tool designed for practitioners and advocates
- Items were selected based on:
  - Correlations with physical activity
  - Guidelines and recommendations
  - Modifiability within realistic budgets & time frames
- Requires minimal training and free to use
Evidence for MAPS-Mini

- Evaluated for validity in the same samples as MAPS-Full
- MAPS-Mini total score is related to active transportation in all age groups, even when adjusting for walkability
- Effects are large: 33% to 243% increase in active transport between lowest and highest 5th of MAPS-Mini score

Frequency of active transport
(d/wk for adults, times/wk for older adults)

What is needed to use MAPS-Mini?

- **Leadership group**
  - Expertise in urban planning/design, coordination & supervision, data management

- **Preparation**
  - Decide on goals, area of study, additional items of interest, mapped assignments for data collectors

- **Recruit, train, certify, supervise observers**
  - Paper or online app data collection

- **Data management & analysis**
  - Personnel, software

- **Communicating the results: who, how, when?**
2 Options for Data Collection

- **Route method**
  - Collect data starting at participant residence and continue for .25 mile toward the nearest destination
  - Multiple segments and crossings per route
  - **Individual-level score**

- **Segment method**
  - Collect data block by block
  - Each survey consists of a street segment and crossing legs on either end of segment
  - **Neighborhood-level score**
Microscale Audit of Pedestrian Streetscapes (MAPS), Mini Version

Training Manual & Picture Guide

Developed by: Carrie Geremia
Kelli Cain

Revised February 12, 2015

Download forms & training manual at:
sallis.ucsd.edu/measure_maps.html

See also:
bit.ly/MAPSmini
Main Header

Date of audit
Auditor ID #
Route ID #
Start Time
End Time
**Segment**: Section of street or road between two crossings.

**Only rate “your” side of street.**
Segment - Heading

Street: ____________ Ave, Rd, St, etc
Side:  N  S  E  W
Starting Cross-street: _______________
Ending Cross-street: _______________

Segment: *Count one (your) side of the street*
Street ______________ Side  N  S  E  W
Starting Cross-street: _______________
Ending Cross-street: _______________
Destinations

1. Is this primarily a residential or commercial segment?
   - Residential
   - Commercial

Decide whether the segment predominantly consists of residential housing or commercial buildings (**whichever has a higher percentage of street frontage along the segment**).

If the segment is evenly split, choose ‘commercial’.

If mixed use with residential above commercial, count what is on street-level.
Destinations

2. How may public parks are present?

- [ ] 0
- [ ] 1
- [ ] 2 or more

A public park should only be counted if it can be accessed along the segment walked. Do not count parks beyond the segment even if they can be seen from the segment.
Public Transit

3. How many public transit stops are present?

- [ ] 0
- [ ] 1
- [ ] 2 or more

Transit stops are only counted on the rater’s side of the segment.
4. Are there any benches or places to sit (include bus stop benches)?

☐ No  ☑ Yes

Must be public seating areas.

Count

Do not count
Streetscape

5. Are street lights installed?

- None
- Some (e.g., overhead street lights on utility poles with wide spacing)
- Ample (e.g., regularly spaced pedestrian lampposts)

Select highest concentration of lighting that is available on the route.
Aesthetics and Social

6. Are the buildings well maintained?

☐ 0-99%  ☐ 100%

0-99% of buildings well maintained
(one or more buildings like this)

100% of buildings well maintained

Buildings do not need to be brand new to get a 100% rating. They just need to be well kept and maintained.
Aesthetics and Social

7. Is graffiti/tagging present (do not include murals)?
   ☐ No      ☐ Yes
Bike Lane

8. Is there a designated bike path?

- No
- Painted Line
- Physical barrier

Painted bike lane

Bike lane separated from traffic with physical barrier
Sidewalk Presence

9. Is a sidewalk present?

☐ No  ☐ Yes

A sidewalk need not be a nicely paved walking path. As long as it is paved, asphalt or concrete; it will count as a sidewalk. Count any sidewalk along a segment, whether short or long.
Trip Hazards

10. Are there poorly maintained sections of the sidewalk that constitute major trip hazards? (e.g., heaves, misalignment, cracks, overgrowth, incomplete sidewalk)

☐ None  ☐ Any/no sidewalk present

Examples of major trip hazards

Major Trip Hazard: An increased likelihood of tripping due to a raising or lowing in the walkway. A major trip hazard would require pedestrians to look down to avoid tripping. An incomplete sidewalk is one that starts or ends mid-segment.
Buffer

11. Is a buffer present?

- No/no sidewalk present
- Yes

**Buffer:** Separates vehicular and pedestrian zones parallel to the edge of paved roads. They often occupy space between traffic lanes and walking paths that is not intended for either vehicle traffic or walkers. Any buffer on a segment, no matter how long, will be counted.
Tree plantings, telephone poles or parking meters should not be considered as a buffer if there is, on average, more than 20 feet between them along the street segment.
Shade Coverage

12. What percentage of the length of the sidewalk/walkway is covered by trees, awnings or other overhead coverage?

- 0-25% / no sidewalk
- 26-75%
- 76-100%

"Coverage" = percent of the length of walkway covered by trees, awnings, or other structures providing shade. It need not cover the entire width of the sidewalk. Depending on the time of the year, trees may lose their leaves, so make sure to visualize the trees with their full foliage, in the middle of the day.
A driveway or alley along a segment would not be a crossing.
Intersection of ______________ & ______________
Crossing from N S E W to N S E W

Crossing
Intersection of ________________________ & ________________________
Crossing from N S E W to N S E W
1. Is a pedestrian walk signal present?

- No
- Yes

**Pedestrian walk signals:** Some indication for pedestrians to know when to walk or don’t walk.
Curb Ramps

2. Is there a ramp at curb(s)?
   - No
   - Yes, at one curb only
   - Yes, at both pre- & post-crossing curbs
Crosswalk Treatment

3. Is there a marked crosswalk?

☐ No
☐ Yes

Marked crosswalk can include basic striping, high-visibility striping, and/or different material than road.
MAPS-Mini % Score

How good is your neighborhood for walking?

<table>
<thead>
<tr>
<th>Very poor</th>
<th>Poor</th>
<th>Fair</th>
<th>Good</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 %</td>
<td>40 %</td>
<td>60 %</td>
<td>80 %</td>
<td></td>
</tr>
</tbody>
</table>

Score = Total points / 21 = %

Post Data Collection Procedures
What to do with the data?

- **Score it**
  - Sum scores for segments (0-17) and crossings (0-4)
    - Average across neighborhoods

- **Analyze it**
  - By segments, crossings or entire neighborhood
    - Syntax for data cleaning and analyses in SPSS is available
    - Can correlate with neighborhood demographics (e.g. Census data) and GIS level data

- **Map it**
  - Geo-code locations to create a map that shows ratings of streets and overall neighborhoods
Advocacy Purposes

- Document disparities in streetscape quality
- Identify great streets and give them awards
- Pinpoint deficiencies and problems so they can be improved
- Engage community members in assessment as a basis for advocacy
MAPS-Mini Trainings

- These slides are only an overview of MAPS-Mini.
- We can host in-depth trainings for more information.
  - Classroom and field training, practice using tool with immediate feedback
  - Rate independently for comparison with gold standard rating, and then certification
- We can offer consultation for data management and analysis
  - OR we can do this for you
- Contact: Chad Spoon, scspoon@ucsd.edu
MAPS Mini Survey – Segment Method

Date ____________ Auditor ID# ______
Route # _______________________
Start Time: _______ End Time: _______

Segment: *Count one (your) side of the street*
Street ______________ Side N S E W
Starting Cross-street: __________
Ending Cross-street: ____________

1. Type: Residential (0) / Commercial (1)
2. How many public parks are present?
   □ 0 □ 1 □ 2 or more
3. How many public transit stops are present?
   □ 0 □ 1 □ 2 or more
4. Are there any benches or places to sit (include bus stop benches)?
   □ No (0) □ Yes (1)
5. Are street lights installed?
   □ None (0) □ Some (1) □ Ample (2)
6. Are the buildings well maintained?
   □ 0-99% (0) □ 100% (1)
7. Is graffiti/tagging present (do not include murals)?
   □ No (0) □ Yes (1)
8. Is there a designated bike path?
   □ No (0) □ Painted line (1) □ Physical barrier (2)
9. Is a sidewalk present? \textit{If no, skip to 12}
   □ No (0) □ Yes (1)
10. Are there poorly maintained sections of the sidewalk that constitute \textit{major trip hazards}?
     \textit{(e.g. heaves, misalignment, cracks, overgrowth, incomplete sidewalk)}
    □ None (0) □ Any/no sidewalk present (9)
11. Is a buffer present?
    □ No/no sidewalk present (0) □ Yes (1)
12. What percentage of the length of the sidewalk/walkway is covered by trees, awnings or other overhead coverage?
    □ 0-25% / no sidewalk (0) □ 26-75% (1) □ 76-100% (2)

\textbf{Score} = \textbf{Total Points} \_\_\_\_\_\_/21 = \_\_\_\_\_%